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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,885	07/20/2004	Sou Kuroiwa	042600	6564
38834 7590 08/30/2007 WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036			EXAMINER WEINSTEIN, LEONARD J	
			ART UNIT 3746	PAPER NUMBER
			MAIL DATE 08/30/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/501,885

Applicant(s)

KUROIWA ET AL.

Examiner

Leonard J. Weinstein

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This office action is in response to the amendment of June 1, 2007. In making the below rejections and/or objections the examiner has considered and addressed each of the applicant's arguments.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-2, and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiwara 5,256,033 in view of Lovisetto EP 55426, and further in view of Kajiwara et al. 5,318,403. Kajiwara '003 teaches all the limitations as discussed for a multistage pump having a plurality of intermediate casings including: a plurality of intermediate casings each having a cylindrical side portion 21, a stage flat portion 27 with which an axial end face 28 of an adjacent intermediate casing 20 is held in contact, a stage side portion 25 extending axially from said stage flat portion 27, and a bottom portion 24 extending radially inward from said stage side portion 25, a relief plate 33 attached to said bottom portion 24 of the intermediate casing 20,

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and the relief plate 33, stage side portion 25, stage flat portion 27, and inner surface 23 of the cylindrical side portion 21 of an adjacent intermediate casing 20 form a space, a return vane 32 interposed between a side plate 34 and said relief plate 33 is formed integrally with said relief plate 33, figure1; and a relief plate 33 attached to said bottom portion 24 at a position near its outermost portion 29 so as to form a gap 30 between a radially inner portion, area of element 33 below 29, of said relief plate 33 and said bottom portion 24 of said intermediate casing 20 according to an amount of deformation of the bottom portion 24 due to a differential pressure between stages (Kajiwara – col. 4 ll. 21-32). Kajiwara '033 fails to teach the limitation that is taught by Kajiwara '403 wherein an O-ring 31 fitted in a space formed by a stage side portion 25, stage flat portion 27, and inner surface 23 of the cylindrical side portion 21 of an adjacent intermediate casing 20. It would have been obvious to one having ordinary skill in the art to provide an O-ring between stages of a multistage pump to improve reliability of seals between pump stages (Kajiwara '403 – col. 2 ll. 10-14; ll. 28-30). Further Kajiwara fails to teach the following claimed limitation that is taught by Lovisetto for a multistage pump 1 with intermediate casings 2 and a plate 12 having an outer circumferential end face 18 which is held in contact with an inner surface 13 of a cylindrical side portion 11 of an adjacent intermediate casing 2 (Lovisetto – Figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the relief plate of Kajiwara to be attached to an inner surface of a cylindrical side portion as taught Lovisetto, to reduce the number of component parts in an intermediate casing and simplify its assembly (Lovisetto pg. 2 ll. 11-15).

5. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiwara 5,256033 i. v. Lovisetto EP 55426. A combination of Kajiwara and Lovisetto teaches all the limitations as discussed for a multistage pump having a plurality of intermediate casings but

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fails to teach the following limitation that is taught by disclosure of prior art in figure 3 of Kajiware '033 teaches multistage pump provided with a return vane 7 having a height at an outer circumferential side that is larger than a height of an inner circumferential side. Kajiware also teaches that this design reduces deformation of the bottom wall of an interstage case while avoiding an increase in thickness. It would have been obvious to combine a relief plate having an outer circumference with a larger height than a height of inner circumference with a relief a partition able to deform within a given limit ( $\delta$ ) in order to provide a interstage casing having a thinner bottom wall (Kajiware '033 – col. 2 ll. 36-46).

### ***Response to Arguments***

6. Applicant's arguments, see pg. 3-5, filed June 1, 2007, with respect to the rejection(s) of claim(s) 1 and 2 under 103 (a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kajiware 5,256,033 in view of Lovisetto EP 55426, and further in view of Kajiware et al. 5,318,403.

7. Applicant's arguments with respect to claims 3 and 6 have been considered but are moot in view of the new ground(s) of rejection.

8. The amendment of June 1, 2007 presents arguments with regards to references Kajiware '033 and Lovisetto that remain relevant in light of the new grounds of rejection. The examiner makes note of applicant's arguments with respect to claims 1 and 2 that Lovisetto does not teach a relief plate that is held in contact with and inner surface of a case and that neither Kajiware '033 nor Lovisetto teach a side plate integrally formed with a relief plate.

9. In response to applicant's argument that Lovisetto does not teach a relief plate that is held in contact with an inner surface of a case the examiner disagrees. The plate 12 of

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Lovisetto on one side forms an intermediate section of a multistage pump by communicating with adjacent intermediate casing 11, and forms a boundary for a baffle 20 on the other. Case 11 is analogous to the to the intermediate casing formed by elements 24-28 of Kajiwara '033 and Kajiwara '403, and is not required to constitute the bottom of a respective stage in order to be applied to the references as discussed. The partition of Lovisetto applied as discussed anticipates the instant invention because it forms an element that is connected to an intermediate casing 11 on one side and a baffle 20 on an opposite side. The relief plate of Kajiwara '033 in a similar manner connects to an intermediate casing, elements 23-28, on one side, and a return blade 32 on an opposite side. The relief plate 33 of Kajiwara '033 does not attach to the inner circumferential surface of an adjacent intermediate casing as does the partition 12 of Lovisetto, connected to an adjacent intermediate casing 11 as shown in figure 2. In response to applicant's argument that neither Kajiwara '033 nor Lovisetto teach a side plate integrally formed with a relief plate the examiner disagrees. The relief plate 33 of Kajiwara '033 is welded to a return vane (col. 4 ll. 39-41) as disclosed and stated by applicant in the amendment of June 1, 2007. The term "integral" is sufficiently broad to embrace constructions united by such means as fastening and welding (in re Hotte (C.C.P.A.) 157 U.S.P.Q. 326); the term is not necessarily restricted to a one-piece article (in re Kohno (C.C.P.A.) 157 U.S.P.Q. 275); and may be construed as relatively broad (in re Dike (C.C.P.A.) 157 U.S.P.Q. 581).

### ***Conclusion***

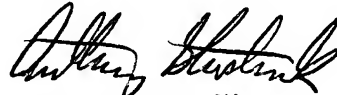
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are cited on form 892 herewith.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard J. Weinstein whose telephone number is 571-272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on 571-272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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